



United States
Department of
Agriculture

Forest
Service

Intermountain Region

Forest Health Protection
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File Code: 3000/3450-1
Route To:

Date: January 21, 2004

Subject: FY 2003 Consolidated State and Private Forestry Reporting Items (Your ltr.
10/1/03)

To: Chief

Enclosed are the narrative responses followed by the FHPIS tables for the 2003 insect and disease conditions in Region 4.

Insect activity increased for 2003. Most of the damage is a direct result of multiple years of drought having weakened the trees' normal defenses. Mountain pine beetle killed over a million trees for the second consecutive year on the Salmon-Challis National Forest and Sawtooth National Recreation Area in central Idaho. Pinyon ips-caused tree mortality is increasing in California, Nevada, and Utah, and fir engraver beetle killed true firs on almost all forests in the Intermountain Region. Mortality caused by Douglas-fir beetle increased across the region. Western spruce budworm defoliation continues to increase in Idaho, Utah, and western Wyoming.

The digital data was sent under separate cover. If you have any questions, please call Kathleen Matthews at 208-373-4239 or kmatthews03@fs.fed.us or Dayle Bennett at 373-4227 or ddbennett@fs.fed.us.

/s/ Dayle D. Bennett (for)
WILLIAM W. BOETTCHER
Director, State and Private Forestry

Enclosure

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Insects: Native

Douglas-fir beetle

Dendroctonus pseudotsugae

Region 4: Idaho, Utah, and Wyoming

Host: Douglas-fir

According to aerial survey data, Douglas-fir beetle caused tree mortality increased dramatically across the Region. In 2002, we reported 29,700 acres affected, approximately 88,700 acres were reported in 2003. Approximately 46,800, 20,100, and 21,800 acres were attributed to southern Idaho, Utah, and western Wyoming, respectively. The largest concentrations of mortality were located on the Bridger-Teton (over 58,700 trees on nearly 17,200 acres), Caribou-Targhee (over 59,000 trees on over 21,000 acres), Salmon-Challis (over 40,600 trees on nearly 16,000 acres), and Payette (nearly 11,700 trees on nearly 6,000 acres) National Forests although nearly all National Forests had some level of tree mortality. Most of the affected Douglas-fir is seriously stressed by continuing drought conditions and/or defoliation by western spruce budworm. Continued mortality is probable.

Douglas-fir tussock moth

Orgyia pseudotsugata

Region 4: Idaho, Nevada and Utah

Hosts: Douglas-fir, true firs

Total acreage defoliated by Douglas-fir tussock moth in 2003 increased nearly ten-fold. Over 12,000 acres were defoliated compared to approximately 2,100 acres in 2002. In Idaho, tussock moth defoliation continued on approximately 3,100 acres of Sawtooth National Forest and Bureau of Land Management lands near the Nevada/Utah border. The majority of the defoliation (7,800 acres) occurred on the Humboldt-Toiyabe National Forest in Elko County, Nevada.

Fir engraver beetle

Scolytus ventralis

Region 4: California, Idaho, Nevada, and Utah

Hosts: grand fir, red fir, subalpine fir, white fir

Fir engraver beetle-caused tree mortality is increasing Region wide due to continued drought conditions. Aerial survey recorded approximately 60,620 trees over 26,040 acres in 2003; up from 14,600 trees on approximately 5,200 acres in 2002. However, the 2002 numbers were an underestimation of tree mortality due to restricted surveys as a result of the extreme fire season.

The areas most affected by this insect include the Humboldt-Toiyabe National Forest (over 13,300 trees on nearly 7,000 acres) in Nevada, the Uinta (nearly 7,300 trees on 4,200 acres) and the Manti-La Sal (over 3,600 trees on over 2,100 acres) National Forests in Utah, and the Payette National Forest (nearly 5,000 trees on over 3,100 acres) in Idaho. On Bureau of Land Management lands approximately 4,200 trees killed on 1,300 acres in Nevada. Additional tree mortality caused by this insect was also observed on state and private land; about 4,700 trees on 3,100 acres in southern Idaho and approximately 7,900 trees on 2,800 acres in Utah.

Forest Tent Caterpillar
Malacosoma disstria

Region 4: California, Idaho, Nevada, Utah, and Wyoming
Hosts: Aspen, Cottonwood

In 2003, forest tent caterpillar defoliation was observed throughout the Region affecting approximately 12,400 acres. Defoliation occurred primarily on aspen. The Humboldt-Toiyabe National Forest in Nevada experienced nearly 8,000 acres of defoliation.

Jeffrey pine beetle
Dendroctonus jeffreyi

Region 4: California, Nevada
Host: Jeffrey pine

Jeffrey pine beetle activity decreased on the Humboldt-Toiyabe National Forest and within the Lake Tahoe Basin Management Area. Across all ownerships in Nevada and portions of California, in 2003 approximately 600 trees were killed on 400 acres compared to 1,668 trees on 821 acres in 2002.

Mountain pine beetle
Dendroctonus ponderosae

Region 4: California, Idaho, Nevada, Utah, and Wyoming
Hosts: limber, lodgepole, Jeffrey, ponderosa, western white, and whitebark pines

Mountain pine beetle-caused tree mortality increased Regionwide from approximately 1,217,200 trees on 127,400 acres in 2002 to 1,806,800 trees over 258,800 acres in 2003. The acres for 2002 are an underestimation since Idaho and Utah were partially surveyed due to the extreme fire season. Three distinct areas comprise the majority of the tree mortality. The largest outbreak area in the Region, which began in 1998, killed an additional 1,098,500 lodgepole pine trees over 137,500 acres on the Sawtooth National Recreation Area and Salmon-Challis National Forests in central Idaho. A smaller, more recent outbreak (2001), located on the Bridger-Teton National Forest in Wyoming increased dramatically for the second consecutive year. Tree

mortality increased from approximately 14,077 whitebark/limber pine trees killed on 6,466 acres in 2002 to nearly 240,000 lodgepole, whitebark and limber pine trees killed over 37,000 acres in 2003. A third outbreak occurs on the Wasatch-Cache and Ashley National Forests in northern Utah. Over 297,000 lodgepole and ponderosa pine trees have been killed on approximately 50,800 acres. Most of the tree mortality occurs along the Mirror Lake Scenic Highway corridor.

Pine engraver beetle
Ips pini

Region 4: Idaho and Utah
Hosts: lodgepole and ponderosa pine

Mortality due to pine engraver beetle remained low throughout the Region. However, beetles did kill scattered groups of ponderosa pine, mostly on the Boise National Forest in southwestern Idaho. Within this area, additional ponderosa pine mortality was detected from ground observations in the fall of 2003. Additional mortality was the result of late season adult beetle “feeding” attacks after emerging from infested slash in late August and early September.

Spruce beetle
Dendroctonus rufipennis

Region 4: Idaho, Utah, and Wyoming
Host: spruce

Spruce beetle caused-tree mortality remained static in 2003. Spruce beetle killed approximately 149,900 trees over 29,600 acres in 2003 compared to 135,346 trees over 29,000 acres in 2002. Southern and central Utah continues to have the largest infestations with approximately 102,200 trees killed on nearly 24,100 acres. Most of the spruce beetle caused tree mortality occurred on the Manti-La Sal National Forest (over 70,200 trees on 13,600 acres). In Utah, tree mortality also occurred on the Wasatch-Cache (approx. 8,800 trees on 1,500 acres), the Dixie (over 8,300 trees on 2,500 acres), the Ashley (nearly 6,900 trees on 2,900 acres), and the Fishlake National Forest with over 5,900 trees killed on 2,400 acres. Another large infestation has developed on the Bridger-Teton National Forest in western Wyoming (over 22,300 trees on 2,800 acres). The infestation originally developed on the Shoshone National Forest in Region 2.

Western pine beetle
Dendroctonus brevicornis

Region 4: Idaho
Host: ponderosa pine

In 2003, approximately 12,800 ponderosa pine trees were killed over 8,100 acres by the western pine beetle, a significant increase over the previous year. In 2002, approximately 7,700 trees

were killed on nearly 3,600 acres. Most of the mortality occurred in southern Idaho on the Salmon-Challis (approximately 5,100 trees on 2,100 acres), the Payette (nearly 3,500 trees on 2,500 acres), and the Boise (approximately 1,600 trees on 1,600 acres) National Forests. Other affected Idaho lands include state and private (nearly 1,900 trees on 1,400 acres) and Bureau of Land Management (nearly 600 trees on 300 acres). This increase in reported mortality is likely associated with a thorough survey of the Salmon-Challis in 2003 and the continuing drought.

Western spruce budworm
Choristoneura occidentalis

Region 4: Idaho, Utah, and Wyoming
Hosts: Douglas-fir and true firs

Western spruce budworm defoliation continues to increase. In 2003, over 203,500 acres were affected, a dramatic increase over the 22,700 acres reported in 2002. While the majority of the defoliation is still concentrated on the Boise and Targhee National Forests in southern Idaho (approximately 88,300 and 69,700 acres respectively), budworm defoliation was reported on nearly all Forests in Region 4. In particular, defoliation was mapped on the Salmon-Challis National Forest in Idaho (over 13,600 acres) and the Dixie National Forest in Utah (nearly 9,000 acres). Budworm defoliation affected other ownerships as well most notably, over 8,700 acres of state and private lands in Idaho.

Pinyon ips
Ips confusus

Region 4: California, Idaho, Nevada, and Utah
Host: Pinyon pine

In 2003 an extensive survey of pinyon pine was conducted in the western United States to determine the extent of pinyon pine mortality. Over 9 million of the estimated 25 million acres of pinyon in Region 4 were surveyed. As reported by the 2003 survey, over 4.5 million trees have been killed within 467,000 acres; primarily on non-Forest Service lands. In Nevada, over 2.4 million trees were killed on approximately 186,600 acres of Bureau of Land Management lands in addition to 217,800 trees on 41,600 acres within the Humboldt-Toiyabe National Forest. In Utah, 678,600 trees were killed over 104,400 acres of Bureau of Land Management and Bureau of Indian Affairs lands in addition to 264,400 trees killed on 42,900 acres of the southern Utah National Forests. State and Private lands in the two states were also heavily impacted. In Nevada, approximately 425,200 trees were killed on 28,300 acres. In Utah, 202,100 trees were killed over 35,200 acres. Historically, pinyon-juniper forests have not been aerially surveyed. However, the dramatic increase in pinyon mortality in 2001 and 2002 resulted in requests by affected National Forests to document this widespread mortality. Most of the mortality caused by pinyon ips is the result of a prolonged period of drought.

Insects: Nonnative

European gypsy moth

Lymantria dispar

Region 4: Idaho, Nevada, and Utah

Hosts: various deciduous species

The gypsy moth was first detected in Utah in 1988. Between 1989 and 1993, almost 72,000 acres of Federal, State, and private lands were treated with *Bacillus thuringensis* (Bt). In 1995, after two years of intensive pheromone trapping resulted in no male moth captures, the gypsy moth was declared eradicated. In 1997, as a result of new introductions, 46 moths were captured in Salt Lake City and one moth on the adjacent Wasatch-Cache National Forest. In 1998 and 1999, the Utah Department of Agriculture, in cooperation with the Forest Service, treated approximately 800 acres each year in Salt Lake County with Bt. In 2000, only one moth was captured in a 10-acre mass-trapping grid. No adult male moths were captured in the 2001 mass trapping grid. In 2002, one male gypsy moth was captured in the Utah gypsy moth detection program on Hill Air Force Base in northern Utah. The 2003 delimitation trapping on the Base produced no moths. However, two male moths were captured on the north slope of the Uinta Mountains in northeastern Utah. Delimitation trapping will occur within this area in 2004.

Diseases: Native

Annosum root disease

Heterobasidion annosum

Region 4: California, Idaho, Nevada, Utah, and Wyoming

Hosts: Bitterbrush, chokecherry, Douglas-fir, true firs, spruce and Jeffrey, lodgepole, and ponderosa pines

This disease can be found throughout the Region, but mostly as a saprophyte on dead trees, stumps, roots, and cull logs or fallen stems. The fungus occasionally kills young ponderosa pine especially in plantations on droughty soils.

Armillaria root disease

Armillaria spp.

Region 4: Idaho, Nevada, Utah, and Wyoming

Hosts: Douglas-fir, grand fir, pines, spruce, and subalpine fir

Evidence of Armillaria root disease can be found throughout the Region but functioning primarily as a weak pathogen or saprophyte causing little direct mortality. In southern Utah, it may act as a primary pathogen, killing mature and immature ponderosa pine and mature fir and spruce on cool sites at high elevation.

Black stain root disease
Ophiostoma wagneri

Region 4: Idaho, Nevada, and Utah
Host: Pinyon pine

Aerial detection and follow-up ground surveys have discovered about two-dozen root disease centers in pinyon pine stands in the Intermountain Region. Perennial infections caused mortality of individual pinyon pine over 50 acres of the Bureau of Land Management Burley District in southern Idaho. In Utah and Nevada, the host is more prevalent. The infected acreage totals 1,150 acres on the Humboldt-Toiyabe National Forest in Nevada and 1,350 acres on the Dixie and Manti-LaSal National Forest in Utah. In many cases the areas with black stain have now been infested with pinyon ips.

Dwarf mistletoes
Arceuthobium spp.

Region 4: Idaho, Nevada, Utah, and Wyoming
Hosts: Douglas-fir, pines, true firs, spruce, and western larch

These plant parasites remain the most widespread and frequently observed disease within the Intermountain Region. Regional incidence by major host species is estimated as follows: lodgepole pine 50 percent, ponderosa pine 20 percent, and Douglas-fir 20 percent. These percentages by host type represent stands having some level of infection.

Diseases: Nonnative

Whitepine blister rust
Cronartium ribicola

Region 4: California, Idaho, Nevada, and Wyoming
Hosts: limber, whitebark, bristlecone, western white and sugar pines

This introduced disease is common throughout its hosts range in southern Idaho and western Wyoming. In 2002, 590 acres of white pine blister rust affecting 1,598 trees were reported on the Salmon-Challis National Forest, none was reported in 2003. It is present in the western portion of the Intermountain Region in California and Nevada near the Lake Tahoe area, as well in the Ruby Mountains in eastern Nevada. No infection has been found or reported in Utah; but the disease has been identified very close to the Utah border in southern Idaho and to the west in the Jarbidge Mountains of northeastern Nevada. The new observations of whitepine blister rust in eastern Nevada are cause for concern because they are close to highly sensitive bristlecone pine populations in Great Basin National Park and elsewhere. Overall, five-needled pine trees

are of low occurrence and frequency in the Intermountain Region. Often relegated to high alpine areas, these pines grow slowly but provide important ecosystem functions such as providing shade and stabilization of snow retention for watershed integrity, recreation, aesthetics, and wildlife habitat and usage.

Declines and Complexes

Subalpine fir mortality complex

Region 4: Idaho, Nevada, Wyoming, and Utah

Host: subalpine fir

Decline and die-off of subalpine fir started in the late 1980's in the Intermountain Region with peak mortality periods occurring during mid-1990 when over a million trees were affected by this complex. Although there are a number of pathogens involved in this complex, the primary insect causing subalpine fir mortality is the western balsam bark beetle; *Dryocoetes confusus*. Drought, heat stress, and winter drying, compounded by overstocked and overmature stand conditions also contribute to subalpine fir mortality. In 2003, the death of approximately 408,400 subalpine fir was recorded; an increase from approximately 334,300 trees recorded in 2002.

FOREST PEST INFORMATION SYSTEM (FPIS)

Region: 4

Date: 1/6/2004

Name of Preparer: Kathleen Matthews

| Pest | State | Land-ownership Class | Acres Infested (thousands) (1 decimal) | Volume Killed (MCF) (1 decimal) | Number of Trees Killed (thousands) | Number of SPB Spots |
|-------------|-------|----------------------|--|---------------------------------|------------------------------------|---------------------|
| DFB | ID | 1 | 44.3 | 3,540.8 | 118.0 | |
| | | 2 | 0.7 | 43.7 | 1.5 | |
| | | 3 | 1.8 | 99.0 | 3.3 | |
| | UT | 1 | 12.3 | 1,173.2 | 39.1 | |
| | | 2 | 2.6 | 241.6 | 8.1 | |
| | | 3 | 5.2 | 465.2 | 15.5 | |
| | WY | 1 | 20.8 | 2,038.8 | 68.0 | |
| | | 2 | 0.5 | 49.1 | 1.6 | |
| | | 3 | 0.5 | 39.5 | 1.3 | |
| DFTM | ID | 1 | 2.4 | | | |
| | | 2 | 0.6 | | | |
| | | 3 | 0.2 | | | |
| | NV | 1 | 7.8 | | | |
| | | 2 | 0 | | | |
| | | 3 | 0.1 | | | |
| | UT | 1 | 0 | | | |
| | | 2 | 0.03 | | | |
| | | 3 | 0.9 | | | |
| FEB | CA | 1 | 1.4 | 42.3 | 1.4 | |
| | | 2 | 0.04 | 0.7 | 0.02 | |
| | | 3 | 0.2 | 5.4 | 0.2 | |
| | ID | 1 | 5.1 | 269.4 | 9.0 | |
| | | 2 | 0.3 | 18.7 | 0.6 | |
| | | 3 | 3.1 | 139.7 | 4.7 | |
| | NV | 1 | 3.0 | 375.9 | 12.5 | |
| | | 2 | 1.5 | 152.4 | 5.1 | |
| | | 3 | 0.1 | 5.7 | 0.2 | |
| | UT | 1 | 8.2 | 540.9 | 18.0 | |
| | | 2 | 0.3 | 31.1 | 1.0 | |
| | | 3 | 2.8 | 236.2 | 7.9 | |

| Pest | State | Land-ownership Class | Acres Infested (thousands) (1 decimal) | Volume Killed (MCF) (1 decimal) | Number of Trees Killed (thousands) | Number of SPB Spots |
|--------------|--------------|-----------------------------|---|--|---|----------------------------|
| MPB | CA | 1 | 0.4 | 7.6 | 0.4 | |
| | | 2 | 0 | | 0 | |
| | | 3 | 0.01 | 0.3 | 0.02 | |
| | ID | 1 | 148.0 | 18,042.3 | 1,127.6 | |
| | | 2 | 1.5 | 81.0 | 5.0 | |
| | | 3 | 2.4 | 262.8 | 16.4 | |
| | NV | 1 | 2.2 | 60.0 | 3.0 | |
| | | 2 | 0.1 | 5.7 | 0.3 | |
| | | 3 | 0.1 | 2.0 | 0.1 | |
| | UT | 1 | 52.6 | 5,984.8 | 299.2 | |
| | | 2 | 0.4 | 17.3 | 0.9 | |
| | | 3 | 0.4 | 29.1 | 1.5 | |
| | WY | 1 | 40.1 | 4,132.0 | 258.3 | |
| | | 2 | 7.4 | 1,065.2 | 66.6 | |
| | | 3 | 3.2 | 440.7 | 27.5 | |
| PIPS* | CA | 1 | 0.1 | 0.02 | 0.2 | |
| | | 2 | 0.02 | 0.0 | 0.03 | |
| | | 3 | 0.05 | 0.04 | 0.4 | |
| | NV | 1 | 41.5 | 27.2 | 217.8 | |
| | | 2 | 187.6 | 304.7 | 2,437.4 | |
| | | 3 | 28.3 | 53.1 | 425.2 | |
| | UT | 1 | 42.9 | 33.0 | 264.3 | |
| | | 2 | 131.4 | 130.1 | 1,041.0 | |
| | | 3 | 35.2 | 25.3 | 202.1 | |
| SB | ID | 1 | 0.2 | 29.7 | 0.3 | |
| | | 2 | 0 | | 0 | |
| | | 3 | 0.01 | 0.9 | 0.01 | |
| | UT | 1 | 23.1 | 8,880.8 | 98.7 | |
| | | 2 | 0.1 | 10.5 | 0.1 | |
| | | 3 | 0.9 | 306.5 | 3.4 | |
| | WY | 1 | 2.8 | 2,011.7 | 22.4 | |
| | | 2 | 2.5 | 2,240.1 | 24.9 | |
| | | 3 | 0.05 | 9.6 | 0.1 | |
| | | | | | | |

| Pest | State | Land-ownership Class | Acres Infested (thousands) (1 decimal) | Volume Killed (MCF) (1 decimal) | Number of Trees Killed (thousands) | Number of SPB Spots |
|-------------|--------------|-----------------------------|---|--|---|----------------------------|
| WPB | ID | 1 | 6.2 | 205.0 | 10.3 | |
| | | 2 | 0.4 | 12.7 | 0.6 | |
| | | 3 | 1.5 | 37.4 | 1.9 | |
| WSB | ID | 1 | 174.3 | | | |
| | | 2 | 3.8 | | | |
| | | 3 | 8.7 | | | |
| | UT | 1 | 13.5 | | | |
| | | 2 | 0 | | | |
| | | 3 | 1.2 | | | |
| | WY | 1 | 2.0 | | | |
| | | 2 | 0 | | | |
| | | 3 | 0 | | | |
| | SAF | 1 | 28.5 | 1,512.7 | 75.6 | |
| | | 2 | 0.9 | 31.1 | 1.6 | |
| | | 3 | 1.7 | 62.1 | 3.1 | |
| | | 1 | 4.7 | 209.6 | 10.5 | |
| | | 2 | 0 | | 0 | |
| | | 3 | 0.3 | 12.6 | 0.6 | |
| | | 1 | 24.0 | 1,938.5 | 96.9 | |
| | | 2 | 1.1 | 92.2 | 4.6 | |
| | | 3 | 9.8 | 792.4 | 39.6 | |
| | | 1 | 26.0 | 2,121.8 | 106.1 | |
| | | 2 | 5.0 | 760.6 | 38.0 | |
| | | 3 | 3.4 | 635.9 | 31.8 | |

| Pest | State | Land-ownership Class | Acres Infested (thousands) (1 decimal) | Volume Killed (MCF) (1 decimal) | Number of Trees Killed (thousands) | Number of SPB Spots |
|-------------|--------------|-----------------------------|---|--|---|----------------------------|
| FTC | CA | 1 | 0.9 | | | |
| | | 2 | 0.0 | | | |
| | | 3 | 0.0 | | | |
| | ID | 1 | 0.3 | | | |
| | | 2 | 0.0 | | | |
| | | 3 | 0.05 | | | |
| | NV | 1 | 8.0 | | | |
| | | 2 | 0.0 | | | |
| | | 3 | 1.0 | | | |
| | UT | 1 | 0.9 | | | |
| | | 2 | 0.3 | | | |
| | | 3 | 0.7 | | | |
| | WY | 1 | 0.03 | | | |
| | | 2 | 0.04 | | | |
| | | 3 | 0.2 | | | |
| | | | | | | |

* *Ips confusus* Pinyon ips